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ABSTRACT

The search for syntactical rules which govern nonverbal communication and cues in humans has often been considered a problem separate from determining semantic rules. Departing from such a traditional approach was accomplished by employing the meaning of various nonverbal channels to study their interrelationship. It was proposed that the functions which relate behavior to meaning are ondulatory and are characterized by a different number of bending points. Examining this model with reference to other theoretical approaches conciliated ambiguity with richness of meaning, structural with external variable research, and syntax with semantics. (Author)

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Toward Syntax, by Way of Semantics

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Running Head: Nonverbal Communication

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Nonverbal Communication:
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Some attempts to formulate a theory of nonverbal communication have focused on the syntactical issue, i.e., on discovering rules for combining various nonverbal signals. Others have stressed semantic issues and have attempted to identify rules for assigning meaning to these signals. In the present paper we propose that further progress toward a theory of nonverbal communication may be achieved by considering the semantic and syntactical issues in a unified framework.

The notion that nonverbal communication obeys certain syntactical rules is central to the work of the structuralist school (e.g., Condon & Ogston, 1957; Crystal & Quirk, 1964; Scheflen, 1966) and has also gained widespread acceptance among other investigators. In support of this approach, the following reasoning has been advanced: Human speech is organized grammatically, therefore, it stands to reason that similar organizational patterns are embedded in nonverbal communication (Leach, 1972; Lyons, 1963); in many nonverbal situations, particularly ceremonial ones, behavioral sequences can be recognized, suggesting the existence of underlying rules (Argyle, 1975, p. 61 ff); temporal sequences of signals have also been noted in the communication of animals (Argyle, 1975, p. 46). Moreover, certain combinations of nonverbal behavior are perceived to be inconsistent (Argyle, 1975, p. 376), possibly because they violate certain combinatory rules.

In spite of these arguments for the existence of syntax in nonverbal

communication, the search for syntactical rules has not yet reached an advanced stage (Argyle, 1972, p. 265). With regard to semantics, some progress toward determining the meaning of nonverbal signals has already been achieved. Notable in this respect, the abandonment of the naive belief that each nonverbal signal corresponds to a unique meaning (Ellsworth, 1974, p. 53). Two studies demonstrating the multiple meaning of "gaze" illustrate this point. In both investigations a person was instructed to stand on the side of a road and to maintain a predetermined degree of eye contact with passing motorists. In the first investigation the person was demanding a lift (Snyder, Grether, & Keller, 1974), while in the second study the gaze was not related to a specific purpose (Ellsworth, Carlsmith, & Henson, 1972). It was found that eye contact increased the likelihood of receiving a lift (i.e., of a motorist stopping his/her car). The opposite was found in the second study: Eye contact resulted in motorists speeding away. The different consequences of the gazing behavior suggests that this same signal had different meaning in the two contexts.

These findings led Ellsworth (1974, p. 54) to propose that the meaning of a nonverbal signal varies with situational variables. But what are these variables which affect meaning? In this paper we shall examine the proposition that a combination of nonverbal signals, even in the absence of other situational cues, is sufficient for a unique determination of meaning. Furthermore, it is suggested that this meaning is provided by the specific relations among the nonverbal signals in the same way that the parts of a verbal sentence contribute to its meaning. It seems, then, that the examination of the ways in which nonverbal signals determine the meaning of a given

behavior may offer some insight into their combinatory rules, i.e., to the nonverbal syntax.

The first step in this task is to define and delimit the areas to be analyzed, both with regard to behavior and to its meaning.

Domain and Range of the Analysis

Interpersonal Behavior

The question of whether a given behavior is or is not interpersonal (or communicative) has not been raised with respect to speech. Verbal behavior is assumed to be communicative since adults rarely talk to themselves. Conversely, various criteria for differentiating between non-interpersonal and interpersonal nonverbal behavior have been proposed. The presence or absence of intent to communicate has repeatedly been suggested as such a criterion under different labels: "Expressions given" (intended) as opposed to the unintended "expressions given off" (Goffman, 1959); "nonverbal communication" when intent exists, versus "nonverbal signs" when no intent is present (Weiner, DeVoe, Rubinow, & Geller, 1972); "communicative" behaviors (intended) as distinguished from "informative" behavior (Ekman & Friesen, 1969). The distinction between intended and unintended communication is not always isomorphic for the transmitter, the receiver, or an observer. From the actor or encoder's point of view, communication is limited to messages which are intentionally transmitted. On the other hand, communication as perceived by the decoder or receiver includes any action from which information about the actor can be intentionally inferred.

In the present paper we shall consider a nonverbal cue to be interpersonal when the sender and the recipient can be identified in the given setting. We thus restrict our analysis to nonverbal communication that takes

place in a face-to-face contact between a specific sender and a specific receiver. At the same time we do not assume intentionality in either partner, since it is often difficult to ascertain in practice whether or not a given signal is intentional.

Classes of Nonverbal Behavior

The term "nonverbal" has been applied to a bewildering array of events and several classifications of this domain have been proposed. Those of Efron (1941), Mahl (1968), and Ekman and Friesen (1969) have much in common. Three of the classes proposed by these authors represent nonverbal signals which are substitutes for, or ancillary to, verbal messages. One such class consists of "emblems," nonverbal signs which have explicit and direct verbal translations (e.g., vertical head nod for "yes," bended finger for "come here," sign language of the deaf, movements used when playing charades). Another class is composed of "illustrators," nonverbal actions that graphically demonstrate a concurrently spoken verbal message (e.g., when verbally describing the height of an object one may simultaneously place a hand at the appropriate distance from the ground). "Regulators" form the third class: They include acts devoid of intrinsic social meaning which serve to maintain normal conversational patterns (Rosenfeld, 1977). For example, during a conversation, the speaker may avoid eye contact with his listener throughout his monologue to indicate a wish to hold the right of speech; termination of the monologue is signaled by resumption of eye contact with the listener, who now realizes that he or she is called upon to respond verbally. This nonverbal signal is equivalent to asking a question such as "What do you think" What is your opinion?" The common feature of these three classes is the existence of verbal equivalents which provide a direct

and rather precise translation of the nonverbal signal; at the very least, signs that belong to these classes are related to verbalization and do not convey an independent meaning.

Two additional categories of nonverbal behaviors have been proposed by Ekman and Friesen (1969), labeled, respectively, "adaptors" and "affect display." "Adaptors" are movements used to "manage emotions, or to develop or maintain prototypic interpersonal contacts" (p. 84), while "affect displays" are expressions associated with primary affect. Because of their relative independence from verbal expressions with respect to their meaning and contingency of occurrence, these two classes are of particular interest to students of nonverbal behavior.

In the present paper we shall consider mainly adaptors and affect displays provided these behaviors are emitted in an interpersonal setting as defined earlier. These messages are transmitted through various channels, such as eye contact, mouth display, interpersonal distance, and body tension. An abundant literature exists on these channels. By contrast, chin elevation and eyebrow display have been neglected, although they, too, carry meaning.

In summary, the present paper will consider nonverbal behaviors which are:

1. Emitted through one of the following channels: Eye contact, head elevation, eyebrow display, interpersonal distance, and body tension.

2. Neither contingent upon, nor a direct translation of verbal messages.

3. Emitted in face-to-face contact which involves identifiable sender and recipient.

Classes of Meaning

In order to relate nonverbal behavior to semantics, a system for classifying meaning is required. One such system has been provided in a recent theory of social exchange which proposes the grouping of resources transacted among individuals into six classes: Love, status, information, money, goods, and services (Foa & Foa, 1974). Transactions concerning money, goods, services and information are typically carried out by concrete exchanges or through the use of language. Information, defined as symbolic communication not pertaining to love and status, may also be conveyed by nonverbal classes of "emblems," "illustrators" and "regulators." However, interpersonal-nonverbal behavior, as defined in this paper, mainly involves the two remaining resource classes: Love or affection, and status or esteem (Foa & Foa, 1974, pp. 80-89). The term "love" is used to signify affectionate regard, warmth, and comfort, including expressions of solidarity, togetherness and belonging. "Status" indicates an evaluative judgment that conveys prestige, appreciation or esteem. Interpersonal behavior may have one of the following effects on its recipients: It may provide them with the resources of love and status, or it may deprive them of these resources. Indeed, earlier experimental work by Albert Mehrabian (1970) has indicated that many nonverbal communications deal with expressions of like and dislike, as well as with status. For the sake of clarity, three issues that bear on the ascription of meaning will be mentioned here briefly.

Meaning with reference to self. Behaviors involving love or status have usually two referents: The actor herself/himself and another person or persons (Foa & Foa, 1974). Reference to self is particularly prominent in expressions which indicate a need for resources or signify possession of them.

In the present analysis, references to self will be omitted and only the meaning of behavior towards others will be considered.

Viewpoint. A given behavior may have a different meaning for the actor, the recipient, or an observer. We assume that such differences arise in the perception of the behavior rather than in the process of decoding its meaning. Observers may select to attend to different cues, disregarding messages that are either less salient or are discordant with their respective needs and expectations. However, once a selected set of cues has been perceived, its interpretation will not vary greatly across individuals of the same culture. Moreover, some cues, such as facial expressions, were found to carry virtually the same meaning even across cultures (Ekman, Sorenson, & Friesen, 1969). Therefore, it seems that the coder (the person ascribing meaning to a perceived behavior) becomes irrelevant when the relationship between perceived behavior and its meaning is examined, although one should bear in mind that perception is not necessarily the same for different individuals.

Reversal rule of omission. When a certain behavior is expected but fails to occur, it acquires meaning by its very absence. We propose that this meaning will assume the opposite value to that which would have been conveyed had the behavior been emitted. An omitted act of provision signifies deprivation; an omitted act of deprivation signifies provision. Not being greeted by a friend indicates dislike; failure to bow in the presence of the king signifies disrespect; the absence of an expected reprimand/insult acquires a connotation of positive regard; avoiding eye contact when looking is expected will connote the opposite meaning to looking. Further, if a given expected behavior has multiple meanings, so will its absence. Given this rule, it becomes unnecessary to devote specific consideration to the meaning

of omitted behavior.

From Discrete Class to a Continuum

When defining a relationship among variables, a quantitative formulation is more elegant and parsimonious than qualitative distinctions. But a continuous function requires that values on each variable be ordered along a scale which is at least ordinal.

Let us first consider the possibility of ordering the four classes of meaning: providing love, providing status, depriving of love and depriving of status. Previous research (Foa & Foa, 1974, pp. 61-69) has shown that: a) Providing love and providing status are closely related; one rarely occurs without the other. The same is true for deprivation of love and of status. b) The joint occurrence of providing and depriving is more common for love than for status. These results impose the following constraints on an order of similarity or relationship among the four classes: a) Providing love and providing status should be close to one another as should depriving of love and depriving of status. b) Providing and depriving of love should be closer to one another than should providing and depriving of status.

These constraints suggest the following order;

1. Depriving of status;
2. depriving of status and love;
3. depriving of love;
4. providing love;
5. providing love and status;
6. providing status.

This order of meanings is invariant across behaviors belonging to each

class so that changing the behaviors within any class will not alter the order. However, distance among classes does vary across specific items: Some expressions of love are closer to providing status than certain others (Foa & Foa, 1976, p. 103). Therefore, a function relating behavior to meaning can be specified only with regard to its characteristics which are topologically invariant.

Let us now consider classes of behavior. Certain channels, such as looking and body carriage, have a natural zero point--for instance, gaze avoidance and complete relaxation (e.g., transcendental meditation)--while no clearly defined upper limit occurs for those channels. By contrast, interpersonal distance ceases to have social significance beyond a few yards, when face-to-face contact becomes impossible; this channel, then, can be considered to have an upper limit. The existence of lower and/or upper limits is convenient (albeit not necessary) for ordering signals on each channel. Starting from an extreme, a certain look is determined to be longer than another, a given distance is shorter than another, etc. The ordering of behavior in this manner does not require the specification of the points on the continuum which separate, for example, short looks from long looks. Thus, the limitations already noted for the continuum of meaning apply also here: The sequence is ordinal and only its topological properties are invariant.

Relationship of Channels to Meaning

That a given signal may have multiple meaning has been well documented. By contrast, for the channels discussed here we found no evidence indicating that different signals from the same channels convey the same meaning. In other words, the relationship of behavior to meaning appears to be multivariate,

while univariance seems to characterize the relationship of meaning to behavior. If so, the function by which behavior and meaning are related should be such that for every value on the behavioral dimension there may be more than one value on the meaning dimension. Conversely, for any given value on the meaning dimension there will be only one value on the behavioral dimension. Functions which have these characteristics are described below.

1. Chin position. A linear function is hypothesized to relate chin position to meaning. The chin becomes progressively lower as one moves from one extreme of the meaning dimension (depriving of status) to its other extreme (providing of status), as depicted in Figure 1.

Insert Figure 1 about here

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2. Interpersonal distance and looking. The relationship of interpersonal distance and looking behavior to meaning is proposed to be characterized by a curve with one bending point. Shorter distance and longer looking are expected to occur more in exchanges of love than in exchanges of status. When displaying love or hate, one will be closer and look more at one's partner; by contrast, high regard or sharp disrespect will be conveyed by more distance and less looking. This function is depicted in Figure 2.

Insert Figure 2 about here

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3. Body carriage. The function proposed for relating body carriage to meaning is characterized by two bending points which differentiate between behaviors involving love and those referring to esteem. Accordingly, a relaxed carriage will indicate depriving of status or providing love; a tense body will signify depriving of love or providing status. This function is

depicted in Figure 3. Eibl-Eibesfeldt (1972b) suggested that raised eyebrows portray deprivation of status or provision of love, while lower eyebrows will occur when status is provided or when dislike is expressed. It could be, then, that this same function will also relate eyebrow position to meaning.

Insert Figure 3 about here

"Wavelike" functions, such as those proposed here were frequently found in other disciplines and are also not novel to the psychological literature. They have been suggested to account for neural activity (Pribram, 1971, pp. 153-161), interpersonal behavior (Foa, 1965), and components of attitudes (Guttman, 1954).

The proposed functions reflect the fact that most nonverbal behaviors have more than one meaning. They also indicate that uniqueness of meaning stems from a profile of behaviors over various channels. For every value on the meaning dimension, there is only one combination of behavioral signals. Thus, while most channels are polivalent with respect to meaning, a one-to-one correspondence between behavior and meaning is determined when several channels are considered.

This relationship between behavior and meaning suggests a criterion for clarity of communication. Clarity will decrease when the distance between the meaning-points to which signals correspond decreases. Furthermore, the probability of the joint occurrence of signals will decrease when the distance between the corresponding points on the meaning dimension increases.

A combination of signals differing widely in meaning will result in a contradictory and ambiguous message. In such an instance, then, more infor-

mation will lead to less communication, a possibility which has been considered by Broadbent (1958). For example, it is difficult to interpret the intentions of a person approaching with a tense body and a smile while avoiding eye contact.

The relative contribution of the nonverbal channels to the meaning of a given message varies for each channel. A broader but less precise range of meaning is carried by functions with fewer bending points. Increased specificity of meaning is provided by functions with more bending points, which are more polivalent with regard to meaning. Thus, chin elevation, a function with no bends, cannot provide more than an approximate, imprecise meaning. Distance and looking, which have one bending point, narrow the range of possible meaning; short distances and/or long looking would indicate that love rather than status is involved. Further precision is added by a channel with two bending points; some tension in the body posture, for example, connotes a certain degree of ambivalence (i.e., love mixed with hostility) as well as an almost complete absence of status implications. Moreover the capacity of a given channel (Dittman, 1972) is not constant but seems to vary with the number of its bending points and the range of the meaning considered. Over a narrow segment, channels with more bending points have a greater capacity for providing precise information. They do, however, become polivalent and therefore more ambiguous in meaning over wider segments. For channels with fewer bending points, the opposite is true: They exhibit more capacity over broader ranges of meaning.

A convergence of meaning from different channels was foreseen by Phoebe Ellsworth (1974, p. 55) when she wrote, " . . . while the exact meaning of a visual behavior will vary with the context, the behavior itself will nar-

row the range of variation . . . ".

The conceptualization advanced in this paper offers a way for the integration of two traditional schools of research in nonverbal behavior, "structural" and "external variable" approaches (Duncan, 1969; Harper, Wiens, & Matarazzo, 1978). Structuralists have been concerned with the joint occurrence, as well as with the sequence, of different nonverbal behavior in given societies, institutions, and roles. In an alternative research strategy, nonverbal communication has been related either to the meaning ascribed to it by observers or to the situations under which it was elicited. Thus, the external variable approach attempts to answer the following questions: Given a specified situation, what will be the elicited nonverbal communication? or Given a specific nonverbal behavior, what will its meaning be? In the present paper, an external variable (i.e., the continuum of meaning) has been enlisted toward the solution of a structural problem (i.e., the relationship among various channels). Thus, the two approaches converge and their interdependence is revealed.

Relationship to Other Theoretical Approaches

The similarities between the ideas advanced by Phoebe Ellsworth (1974) and those presented here have been already noted. Both approaches recognize that a specific meaning stems from a cluster of signals rather than from a single clue. We have further proposed that a set of signals from various nonverbal channels is sufficient to determine meaning, even in the absence of other cues.

The present formulation also bears a relationship to the hierarchical theory of emotions (Stringer, 1973). Essentially, such theory proposes that emotions are composed of a number of components. Some of those are

specific, while others are shared by a larger number of emotions. Perhaps the more general components are physiological and the more specific are cognitive. A customary representation of this conception is a branching-off tree. The more general components are subdivided into the more specific ones. In this way it becomes possible to consider high order clusters of emotions, which have a common general component. In turn, those are composed of smaller clusters that share components of lesser generality. Evidence for higher order clusters, each formed from lower level clusters, was found by Frijda (1973) in studying judgments of emotion portrayed in facial photographs.

There are at least two characteristics shared by the hierarchical theory of emotions and by our formulations. Both propose that different components are related, so that not every combination is possible, or at least, equally frequent, even beyond differences in the marginal frequencies. Indeed, Osgood (1966, quoted by Stringer, 1973, p. 355) noted that, when facial expressions were plotted on a multidimensional space, some "holes" became evident. Apparently these empty zones refer to multidimensional profiles that occur only rarely or never.

A second common trait is that some nonverbal behaviors have a wider (linear) range of meaning than others. Frijda (1973, p. 338) reported that "Some expressive features (e.g., lips slightly parted, eyebrows raised, or head tilted sideways) correlate with all, or nearly all, terms in a cluster, even at the highest level of clustering. Some other traits correlate only with the terms of one of several subordinate clusters, and some only with certain terms."

Moreover, the multi-channel relationship to meaning that we presented

can be represented in a tree form. An example is given in Figure 4. Con-

Insert Figure 4 about here

versely, the representation of the tree as a series of curvilinear functions is not always possible. Indeed, the tree requires less information. In a tree, as opposed to continuous functions, the composition of the various branches need not be spelled out; common components among branches cannot easily be identified at different points on the tree; and the criterion by which branching off occurs at any given level is not specified.

A Preliminary Testing of the Hypotheses

Do existing data support the proposed hypotheses? In order to answer this question we reviewed the existing literature with regard to distance, looking, and carriage. Each of these three channels was dichotomized and then related to four classes of meaning -- providing love, providing status, depriving of love, and depriving of status. Pairing these four classes with the dichotomized three channels yielded a set of $2 \times 3 \times 4 = 24$ elements. The theory proposes that some of these 24 combinations of behavior and meaning will occur while certain others will not. For example, a long look will be related to provision of love, but not to provision of status. The theory is supported when the predicted combinations are empirically observed, and, conversely, when there is no evidence for the existence of combinations that are not expected to occur. Thus, the 24 combinations were divided into two classes -- "found" and "not found." We disregarded the frequency with which any combination occurred empirically to avoid the monumental task of counting the many investigations and evaluating their findings.

Insert Table 1 about here

The results of this comparison between theory and empirical findings are reported in Table 1; they indicate agreement in 20 of the 24 combinations. While such a fit is quite supportive, it can hardly be considered conclusive. Indeed, formulation of the hypotheses was not independent of these same data. On the other hand, this test of fit is rather conservative since all available evidence was considered equally valid. Yet, there are at least two sources of bias in these reports:

1. The data refer to verbal labels of nonverbal behavior, rather than directly to the behavior itself. With the exception of some of Ekman's work (Ekman, Friesen, & Tomkins, 1971), this labeling is not sufficiently standardized to assure uniform one-to-one correspondence between behavior and label. Moreover, labeling is sometimes tainted with meaning--once a mouth expression has been labeled "sneer," one can hardly assign a positive connotation to it.

2. A nonverbal behavior may be specific to certain roles, although the behavior itself may not be meant to express this role. This happens, for example, when a superior touches an inferior in an affectionate but unreciprocated gesture. It is true that this form of giving affection will not occur unless there is a status difference; nevertheless, the behavior itself means giving love, not taking status. An observer may, however, focus on the status implications to such a behavior.

Some Further Implications

The formulation proposed here has a bearing on several issues which we shall now consider briefly.

Cross-cultural validity. Virtually all cross-cultural studies report

variations among cultures in the amount or frequency of a given behavior (LaFrance & Mayo, 1978). White Americans were found to look at a speaker of the same sex more than black Americans, while no difference was found when the speaker was of the opposite sex (LaFrance & Mayo, 1976). Elzinga (1975) reported that Japanese touch each other less than do Americans. Using doll placements, Little (1968) studied interaction distance in five national groups; in each culture 19 different situations were presented. He found that distance was closer in Mediterranean cultures than in North European ones. Nevertheless, when social situations were ranked according to the normative distance within each culture, the same order appeared for all cultural groups. Thus, there was agreement across cultures about which situations required more or less proximity — a shorter distance was indicated for love exchange, while a longer distance was related to status deprivation.

These cross-cultural variances and invariances are illustrated in Figure 5. In hypothetical culture A, interpersonal distance is always larger than in culture B. In culture C, on the other hand, the distance displayed

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Insert Figure 5 about here

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for status is greater than in the other cultures, while the distance for love is smaller. Yet in all cultures, more distance is displayed for status than for love. In spite of this invariance, the same signal may have a different meaning in various cultures. For example, Japanese appear to evince more body tension than do Americans (Taylor, 1974). Consequently, body carriage which is relaxed by Japanese standards may convey tension to an American. Thus, when a Japanese shows provision of love and status, the American may decode it as deprivation of love. This is precisely the type of pre-

diction which ensues from a family of curves such as those portrayed in Figure 5.

Redundancy. Channels sharing the same function (e.g., looking and distance) seem to provide essentially equivalent meaning. Indeed, looking and distance were found to substitute for one another (e.g., Argyle & Dean, 1965).

Development. As newborns develop, they become able to use an increasing number of channels. Body tension occurs almost from the onset, as when the satiated newborn rejects the nipple. Eye contact follows, beginning at the third and fourth week (Wolf, 1963, quoted by Vine, 1973, p. 211). Distance management is next, starting at around 40 weeks (Moreno, 1953, quoted by Lomranz, Shapira, Horsch, & Gilat, 1975, p. 541). Interpersonal distance increases as the child grows older (Lomranz et al., 1975). Finally, the gesture of pushing the chin forward, tilting the head back, and stretching the neck seems to appear in the second year of life (McGrew, 1970, quoted by Blurton Jones, 1972, p. 282).

This sequence of development starts from channels exhibiting a higher number of bending points, channels with fewer bending points and less polivalence appearing later. One can speculate that higher polivalence results from the fact that channels which develop earlier in the sequence appeared before classes of meaning became fully differentiated from one another (Foa & Foa, 1974, pp. 32-40). When status is not differentiated from love, the distinction between short and long looking is meaningless.

Change. The effect of behavioral changes on meaning is affected by the specific function of the channel. Suppose chin elevation, which exhibits a monotonic function, is changed from high to low. Meaning will then reverse from one extreme of the continuum to the other. By contrast, when behavior-

al changes involve channels with one or two bends, the corresponding modification of meaning will be less drastic. For example, when distance decreases, looking increases, and body tension decreases, all these changes will signify the transmission of love in addition to the status that had already been given.

Change in one channel only is unlikely to occur since most often it will result in a profile of behaviors that is incompatible with the functions described above.

Deviance. Behaviors that violate the intricate patterns of nonverbal cues are labeled ambiguous, contradictory, suspicious, or even pathological. An example of deviant behavior would be smiling to somebody while keeping a rigid posture and avoiding eye contact. Unfortunately, we were unable to find published evidence on the hypothesis that deviant individuals exhibit anomalous profiles of nonverbal behavior. Recent literature on nonverbal behavior of mental patients (e.g., Beck & Ollendick, 1976; Gottheil, Thornton, & Exline, 1976; Hill, 1974; Richer & Coss, 1976; Williams, 1974) typically compares patients and normals on a single channel, mainly on that of looking.

Concluding Remarks

The proposed model of the relationship between nonverbal cues and meaning seems to offer a solution to a number of difficulties encountered in attempts to provide a theoretical framework for the burgeoning empirical research on nonverbal communication. It conciliates ambiguity with richness of meaning, structural with extrenal variable research, and syntax with semantics. Further testing will require multi-channel research which is as yet scarce. In 1974, Ekman and Friesen noted that most studies dealt with

one channel only. Four years later, the same remark was made by Harper, Wiens, and Matarazzo (1978, p. 318) when they reported on the state of the art. We hope that the ondulatory model will stimulate multi-channel investigations and thus contribute to the progress of research in nonverbal communication.

References

Argyle, M. Nonverbal communication in human social interaction. In R. A. Hinde (Ed.), Nonverbal communication. Cambridge, England: University Press, 1972.

Argyle, M. The syntaxes of bodily communication. International Journal of Psycholinguistics, 1973, 2, 71-91.

Argyle, M. Bodily communication. New York: International Universities Press, 1975.

Argyle, M., & Dean, J. Eye-contact, distance, and affiliation. Sociometry, 1965, 28, 289-304.

Beck, S. J., & Ollendick, T. H. Personal space, sex of experimenter and locus of control in normal and delinquent adolescents. Psychological Reports, 1976, 38, 383-387.

Blurton Jones, N. G. Non-verbal communication in children. In R. A. Hinde (Ed.), Non-verbal communication. Cambridge: Cambridge University Press, 1972.

Broadbent, D. E. Perception and communication. Oxford, England: Pergamon, 1958.

Condon, W. S., & Ogston, W. D. A segmentation of behavior. Journal of Psychiatric Research, 1967, 5, 221-235.

Crystal, D., & Quirk, R. Systems of prosodic and paralinguistic features in English. The Hague: Mutton, 1964.

Dittman, A. T. Interpersonal messages of emotion. New York: Springer, 1972.

Duncan, S. D., Jr. Nonverbal communication. Psychological Bulletin, 1969, 72, 118-132.

Efron, D. Gesture and environment. New York: Kings Crown Press, 1941.

Eibl-Eibesfeldt, I. Similarities and differences between cultures in expressive movements. In R. A. Hinde (Ed.), Nonverbal communication. Cambridge, England: University Press, 1972.

Ekman, P., & Friesen, W. V. The repertoire of nonverbal behavior: Categories, origins, usage and coding. Semiotica, 1969, 1, 49-98.

Ekman, P., & Friesen, W. V. Nonverbal behavior and psychopathology. In R. J. Friedman & M. M. Katz (Eds.), The psychology of depression: Contemporary theory and research. Washington, D.C.: Winston, 1974.

Ekman, P., Friesen, W. V., & Tomkins, S. S. Facial affect scoring technique: A first validity study. Semiotica, 1971, 3, 37-58.

Ekman, P., Sorenson, E. R., & Friesen, W. V. Pan-cultural elements in facial displays of emotion. Science, 1969, 164, 86-88.

Ellsworth, P. C. Direct gaze as a social stimulus: The example of aggression. In P. Pliner, L. Krames, & T. Alloway (Eds.), Nonverbal communication of aggression. New York: Plenum, 1974.

Ellsworth, P. C., Carlsmith, J. M., & Henson, A. The stare as a stimulus to flight in human subjects: A series of field experiments. Journal of Personality and Social Psychology, 1972, 21, 302-311.

Elzinga, R. H. Nonverbal communication: Body accessibility among the Japanese. Psychologia, 1975, 18, 205-211.

Foa, E. B., & Foa, U. G. Resource theory of social exchange. In J. W. Thibaud, J. T. Spence, & R. C. Carson (Eds.), Contemporary topics in social psychology. Morristown, N.J.: General Learning Press, 1976.

Foa, U. G. New developments in facet design and analysis. Psychological Review, 1965, 72, 262-274.

Foa, U. G., & Foa, E. B. Societal structures of the mind. Springfield, Ill.: C. C. Thomas, 1974.

Frijda, N. H. The relation between emotion and expression. In M. von Cranach & J. Vine (Eds.), Social communication and movement. New York: Academic Press, 1973.

Goffman, E. The presentation of self in everyday life. New York: Doubleday, 1959.

Gottheil, E., Thorton, C. C., & Exline, R. V. Appropriate and background affect in facial display of emotion: Comparison of normal and schizophrenic males. Archives of General Psychiatry, 1976, 33, 565-568.

Guttman, L. The principal components of scalable attitudes. In P. F. Lazarsfeld (Ed.), Mathematical thinking in the social sciences. Glencoe, Ill.: Free Press, 1954.

Harper, R. G., Wiens, A. N., & Matarazzo, J. D. Nonverbal communication: The state of the art. New York: Wiley, 1978.

Hill, D. Nonverbal behavior in mental illness. The British Journal of Psychiatry, 1974, 124, 221-230.

LaFrance, M., & Mayo, C. Racial differences in gaze behavior during conversation: Two systematic observational studies. Journal of Personality and Social Psychology, 1976, 33, 547-552.

LaFrance, M., & Mayo, C. Cultural aspects of nonverbal behavior. International Journal of Intercultural Relations, 1978, 2, 71-90.

Leach, E. The influence of cultural context on nonverbal communication in man. In R. A. Hinde (Ed.), Nonverbal communication. Cambridge, England: University Press, 1972.

Little, K. B. Cultural variations in social schemata. Journal of Personality and Social Psychology, 1968, 10, 1-7.

Lomranz, J., Shapira, A., Horesh, N., & Gilat, Y. Children's personal space as a function of age and sex. Developmental Psychology, 1975, 11, 541-545.

Lyons, J. Structural semantics. Oxford, England: Blackwell, 1963.

Mahl, G. F. Gesture and body movements in interviews. In J. M. Shlien (Ed.), Research in psychotherapy. Washington, D.C. American Psychological Association, 1968.

Mehrabian, A. A semantic space for nonverbal behavior. Journal of Consulting and Clinical Psychology, 1970, 35, 248-257.

Pribram, K. H. Languages of the brain: Experimental paradoxes and principles in neuropsychology. New York: Prentice-Hall, 1971.

Richer, J. M., & Coss, R. G. Gaze aversion in autistic and normal children. Acta Psychiatrica Scandinaviae, 1976, 53, 193-210.

Rosenfeld, H. M. Conversational control functions of nonverbal behavior. In A. Siegman & S. Feldstein (Eds.), Nonverbal behavior and communication. Hillsdale, N.J.: Lawrence Erlbaum Associates, 1977.

Scheflen, A. E. Natural history method in psychotherapy: Communication research. In L. A. Gottschalk & A. H. Auerbach (Eds.), Methods and research in psychotherapy. New York: Appleton-Century-Croft, 1966.

Snyder, M., Grether, J., & Keller, K. Staring and compliance: A field experiment on hitchhiking. Journal of Applied Social Psychology, 1974, 4, 165-170.

Stringer, P. H. Do dimensions have face validity? In M. von Cranach & I. Vine (Eds.), Social communication and movement. New York: Academic Press, 1973.

Taylor, H. M. American and Japanese nonverbal communication. In J. V. Heustupny (Ed.), Papers in Japanese linguistics, Vol. 3. Melbourne: Monash University Press, 1974.

Vine, I. The role of facial-visual signalling in early social development. In M. von Crahach & I. Vine (Eds.), Social communication and movement. New York: Academic Press, 1973.

Wiener, M., DeVoe, S., Rubinow, S., & Geller, J. Nonverbal behavior and nonverbal communication. Psychological Review, 1972, 79, 185-214.

Williams, E. An analysis of gaze in schizophrenics. British Journal of Social and Clinical Psychology, 1974, 13, 1-8.

Footnotes

We thank Sandra Tunis for her suggestions.

Table 1

Empirical Testing of Hypotheses

Channel	Value	Meaning			
		Depriving of		Providing of	
		Status	Love	Love	Status
Look	Long	-	(x)	(x)	(-)
	Short	x	(-)	(-)	(x)
Distance	Short	(-)	(x)	(x)	(-)
	Long	(x)	(-)	(-)	(x)
Body carriage	Tense	(-)	(x)	-	(x)
	Relaxed	(x)	-	(x)	(-)

x meaning predicted

\- meaning not predicted

◯ prediction supported empirically

Figures Legend

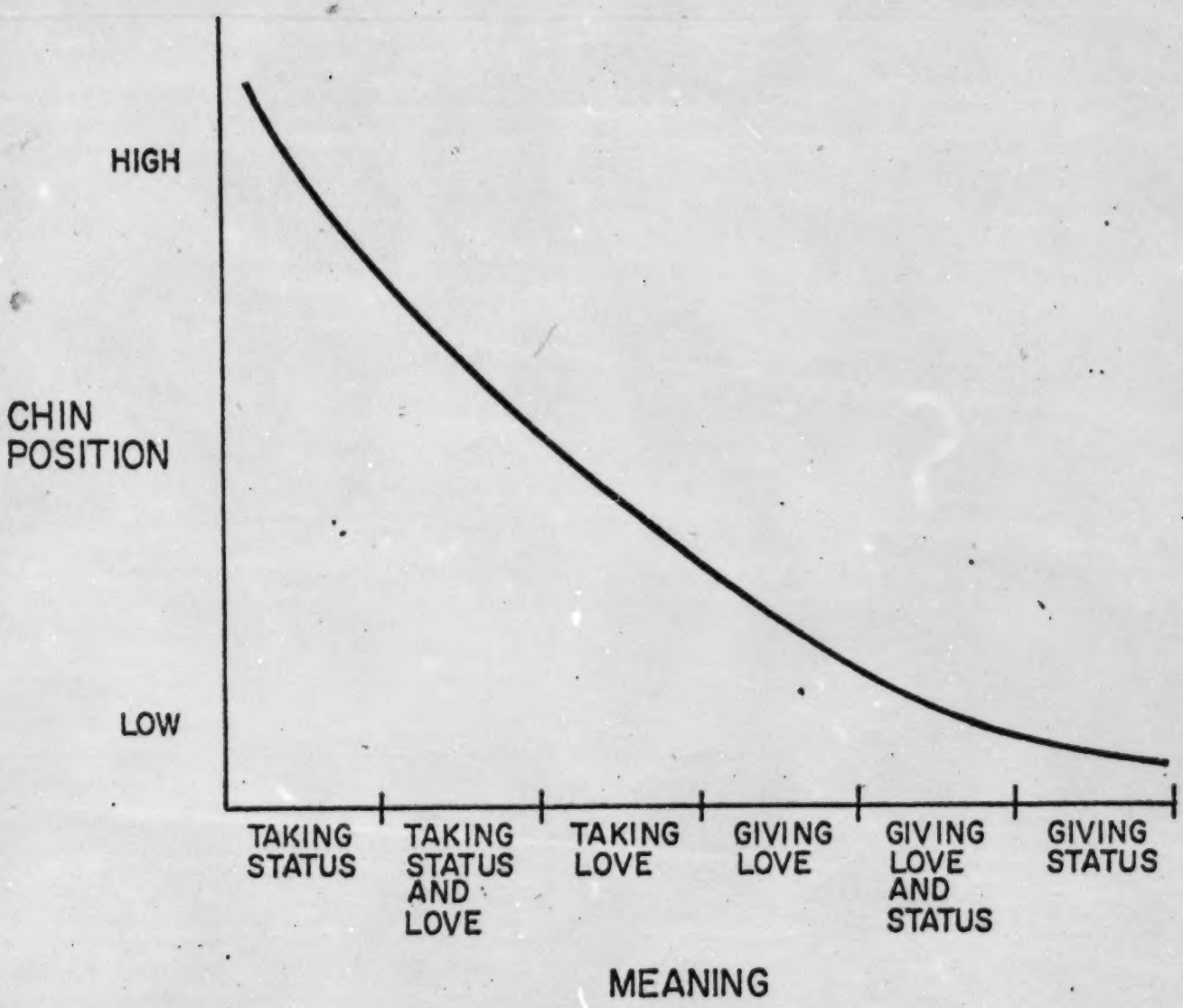
Fig. 1 No bending points: Proposed relationship between chin elevation and meaning.

Fig. 2 One bending point: Proposed relationship between interpersonal distance (or looking) and meaning.

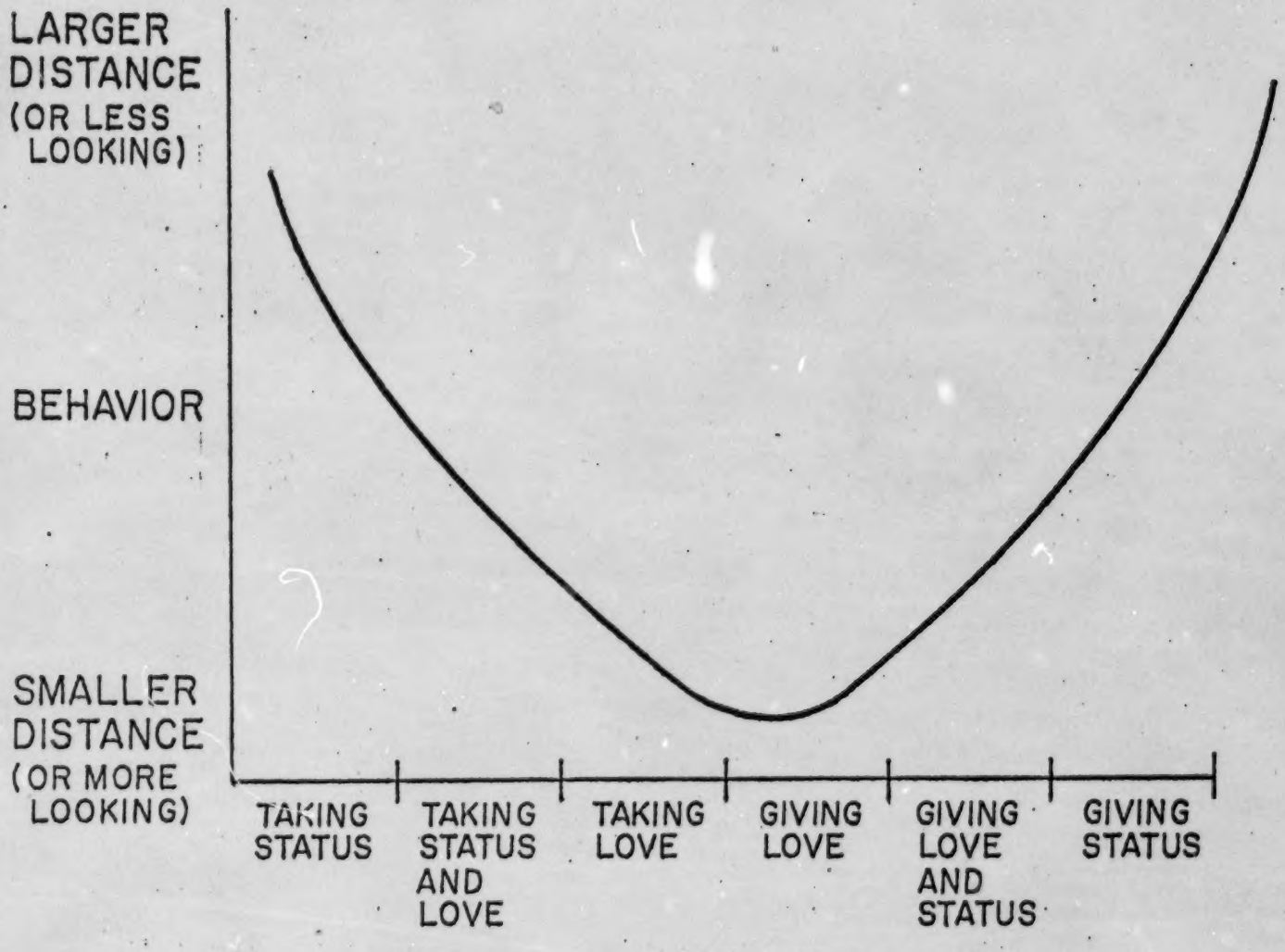
Fig. 3 Two bending points: Proposed relationship between body carriage and meaning.

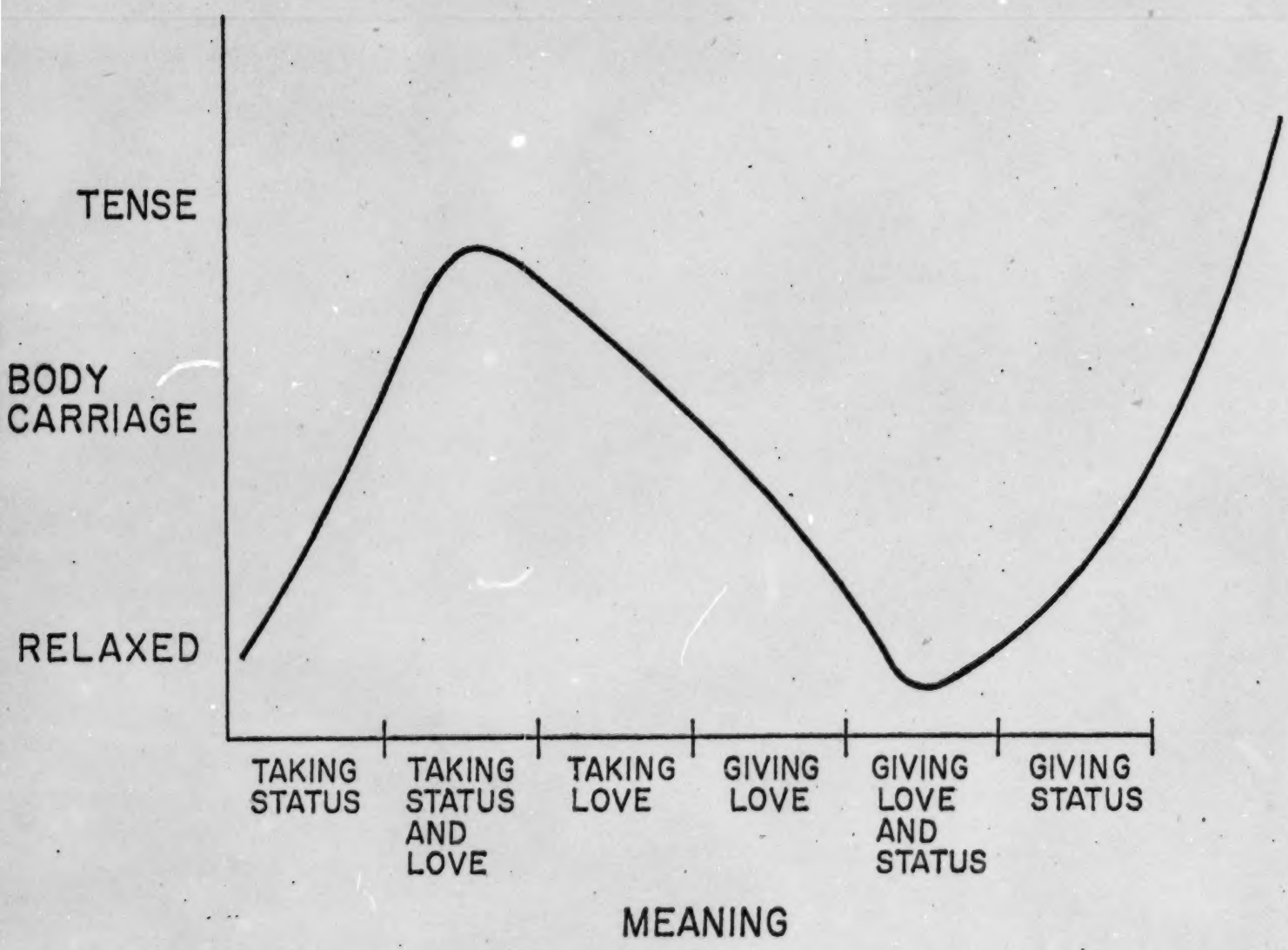
Fig. 4 A branching-off representation of the hypotheses.

Fig. 5 Functions of the same shape characterizing different cultures.


HIGH
CHIN POSITION
LOW
TAKING STATUS
TAKING STATUS AND LOVE
TAKING LOVE
GIVING LOVE
GIVING LOVE AND STATUS
GIVING STATUS
MEANING

l behavior


LARGER DISTANCE (OR LESS LOOKING)
BEHAVIOR
SMALLER DISTANCE (OR MORE LOOKING)
TAKING STATUS
TAKING STATUS AND LOVE
TAKING LOVE
GIVING LOVE
GIVING LOVE AND STATUS
GIVING STATUS
MEANING


TENSE
BODY CARRIAGE
RELAXED
TAKING STATUS
TAKING STATUS AND LOVE
TAKING LOVE
GIVING LOVE
GIVING LOVE AND STATUS
GIVING STATUS
MEANING

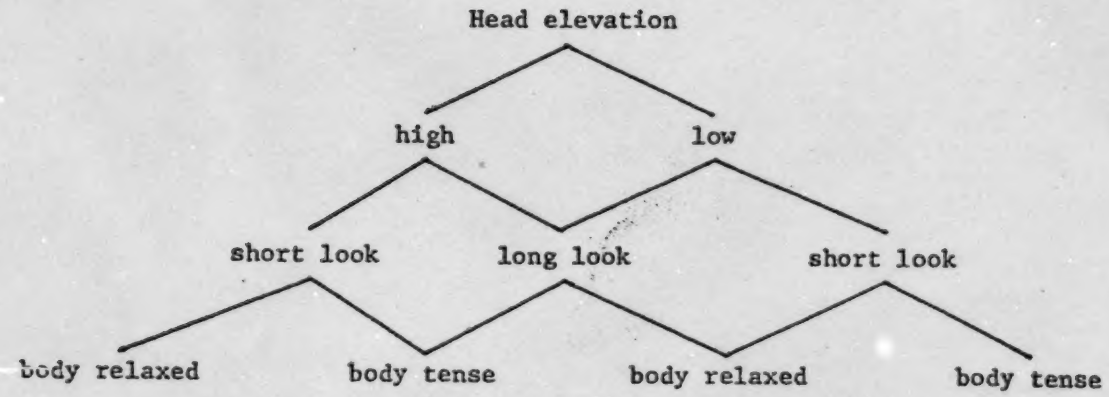
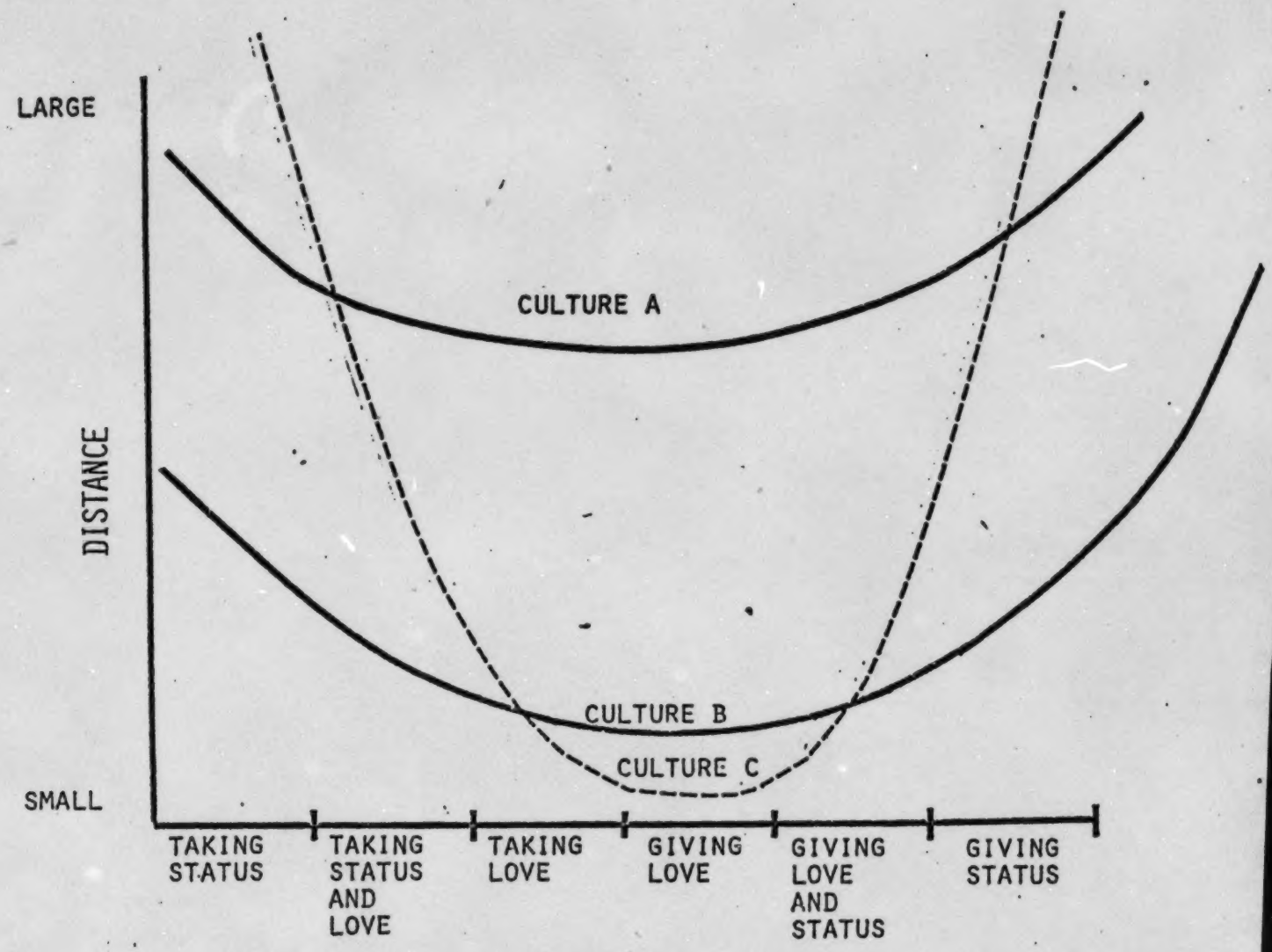


Figure 4. An example of branching-off representation of the theory.


LARGE
DISTANCE
SMALL
CULTURE A
CULTURE B
CULTURE C
TAKING STATUS
TAKING STATUS AND LOVE
TAKING LOVE
GIVING LOVE
GIVING LOVE AND STATUS
GIVING STATUS
MEANING